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Three new species of *Septobasidium* (*Septobasidiaceae*) from southern and southwestern China

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Abstract —Three new species, *Septobasidium symploci* on *Symplocos* sp. associated with *Aulacaspis* sp., *Septobasidium euonymi* on *Euonymus japonicus* associated with *Aonidiella* sp., and *Septobasidium cotoneastri* on *Cotoneaster rubens* associated with *Aulacaspis* sp., are described. They were collected from Hainan and Yunnan Provinces and Xizang Autonomous Region, China.

Key words —*Pucciniomycetes*, *Septobasidiales*, taxonomy

Southern and southwestern China has a varied and rich mycota. Several mycological investigations dealing with many new species and new Chinese records from these areas have been published recently (Dai et al. 2011, Zhang et al. 2012). An additional three new species of *Septobasidium* are reported as follows:

Septobasidium symploci S.Z. Chen & L. Guo, sp. nov. Figs 1–7

Fungal Name FN 570030

Differs from *Septobasidium thwaitesii* by its smaller basidiomata and basidia.

Type: China, Hainan Province, Bawangling Natural Reserve, alt. 950 m, on *Symplocos* sp. (*Symplocaceae*), associated with *Aulacaspis* sp. (*Diaspididae*), 13.IV.2011, L. Guo 11603, (HMAS 242888, **holotype**).

Etymology: The epithet refers to the substrate plant genus.

Basidiomata on trunks and branches, punctiform, 0.1–2 cm long, 0.1–0.3 cm wide, grey-brown or cinnamon-brown, forming small isolated or confluent patches, irregular growth; margin indeterminate, surface smooth. In section 500–1050 μm thick. Subiculum brownish, 30–50 μm thick. Pillars brown,

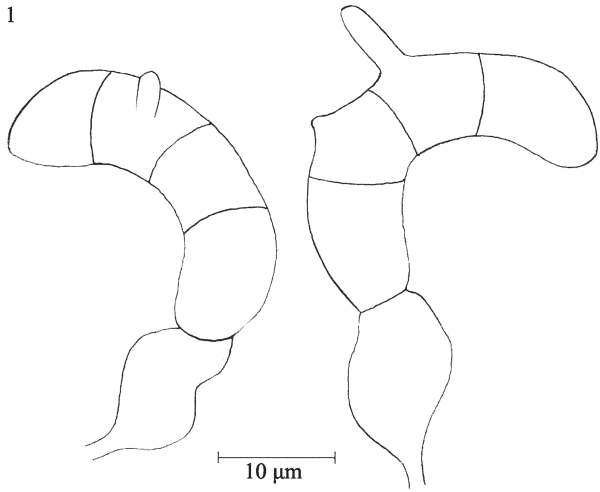


Fig. 1. *Septobasidium symploci* (HMAS 242888, holotype). Probasidia and basidia.

50–80 μm high, 40–50 μm wide. Hyphae often forming 3–4 inconspicuous strata, 400–900 μm high, brown. Hymenium hyaline or brown, 110–135 μm thick. Probasidia subglobose, obovoid or ellipsoidal, 12–18 × 7–14 μm, hyaline or brown. Basidia cylindrical, curved, 4-celled, 32–42 × 8–9 μm, brown, with persisting probasidial cell. Sterigmata conical, 5–8 × 2–3 μm, hyaline. Basidiospores ovoid, 10–20 × 5–6 μm. Haustoria consisting of hyphae.

Comments: *Septobasidium symploci* is similar to *S. thwaitesii* (Berk. & Broome) Pat., but the latter has larger basidiomata, 15–20 cm long, with larger fissions on the surface, slightly larger and wider basidia, 37–46 × 12–13.5 μm, and two conspicuous horizontal layers in the section (Couch 1938).

Septobasidium cotoneastri S.Z. Chen & L. Guo, **sp. nov.** Figs 8–14

Fungal Name FN 570031

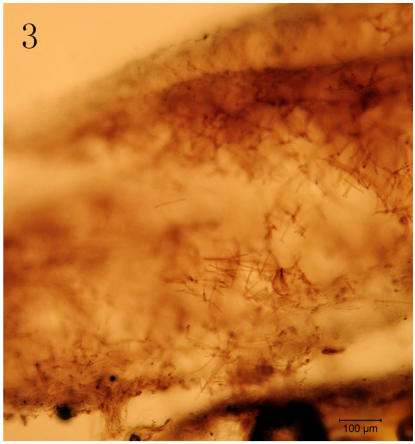
Differs from *Septobasidium patouillardii* by its thicker section and smaller basidia.

Type: China, Xizang, Nyingchi, Gadinggou, alt. 2980 m, on *Cotoneaster rubens* W.W. Sm. (*Rosaceae*), associated with *Aulacaspis* sp., 25.IX.2010, S.H. He XZ11 (HMAS 251318, **holotype**).

Etymology: The epithet refers to the substrate plant genus.

Figs. 2–7 *Septobasidium symploci* (HMAS 242888, holotype). 2. Basidiomata on trunk. 3–4. Sections of basidiomata. 5–6. Probasidia and basidia (arrows). 7. Haustoria.

2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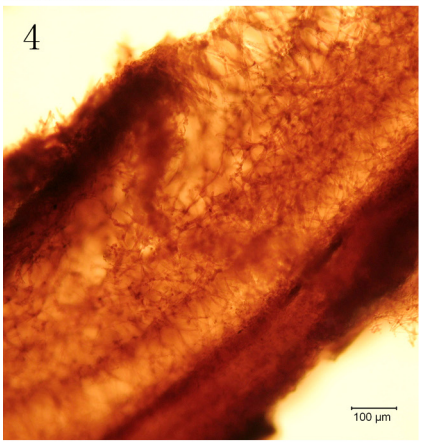
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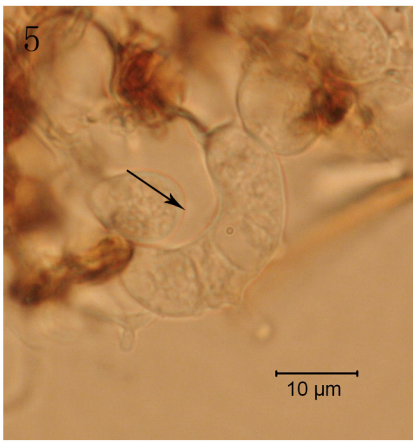
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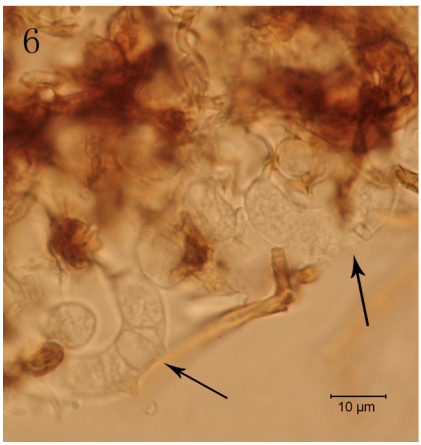
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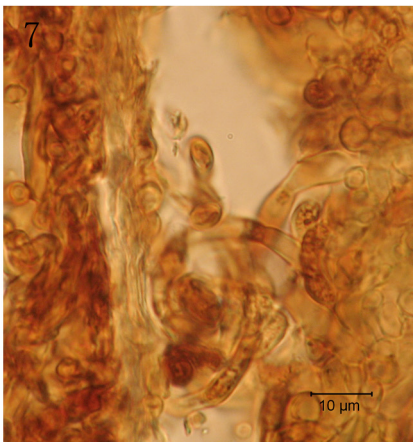
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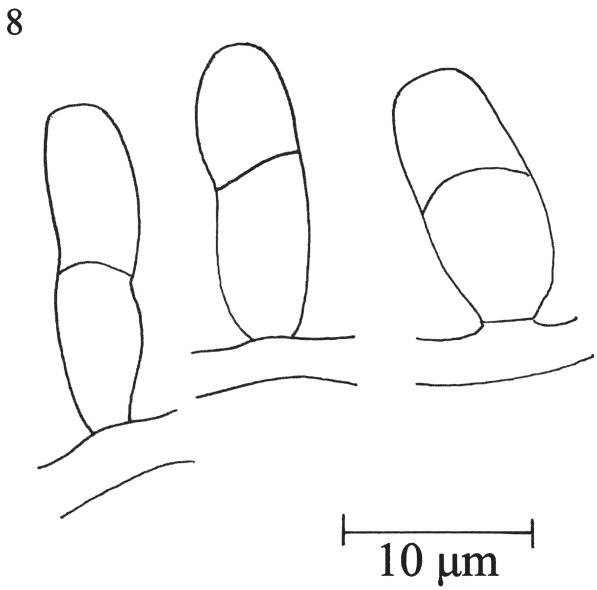

Fig. 8. *Septobasidium cotoneastri* (HMAS 251318, holotype). Basidia.

Basidiomata on branches, 0.2–10 cm long, 0.1–4.5 cm wide, brown or chestnut-brown, forming small isolated or larger patches, irregular growth, sometimes growing along the subiculum, up to 5000 μm high, emerging chestnut-brown hyphal layers; margin determinate, surface smooth, cracked at maturity. In section 600–1750(–5000) μm thick. Subiculum brown, 30–50 μm thick. Pillars brown, 150–200 μm high, 30–70 μm wide. Hyphal layer 200–1100(–4500) μm high, brown. Hymenium hyaline or brown, 80–120 μm thick, with vertical thin-walled, ca. 0.5 μm thick paraphyses. Basidia arising directly from the hyphae without a probasidial cell, clavate, straight, 2-celled, 15–19 × 4–6.5 μm, hyaline or brown; wall 0.5 μm. Basidiospores not seen. Haustoria consisting of regularly coiled hyphae.

Additional specimens examined: **China**, **Xizang**, Nyingchi, Gadinggou, alt. 2980 m, on *Cotoneaster obscurus* Rehder & E.H. Wilson (*Rosaceae*), 25.IX.2010, S.H. He XZ14, (HMAS 251320); on *Sorbus rufopilosa* C.K. Schneid. (*Rosaceae*), 25.IX.2010, S.H. He XZ13, (HMAS 251319); 25.IX.2010, S.H. He XZ19, (HMAS 251328).

Figs. 9–14. *Septobasidium cotoneastri*. 9. Basidiomata on branch (HMAS 251318, holotype). 10. Basidiomata on branches (HMAS 251319, paratype). 11. Section of basidioma (HMAS 251318, holotype). 12–13. Basidia (arrows) (HMAS 251318, holotype). 14. Haustoria (HMAS 251318, holotype).

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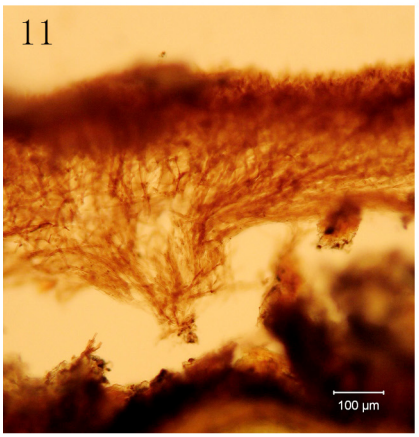
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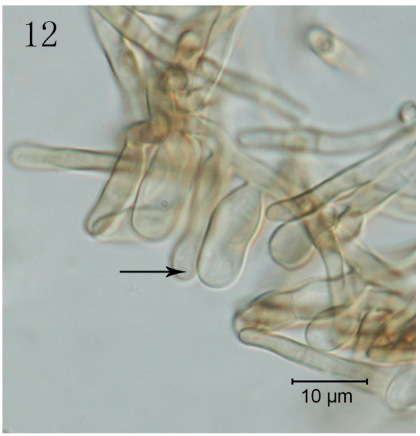
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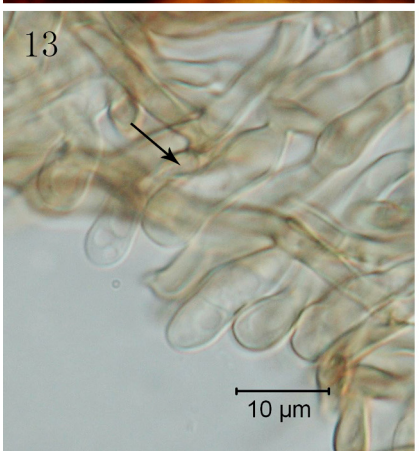
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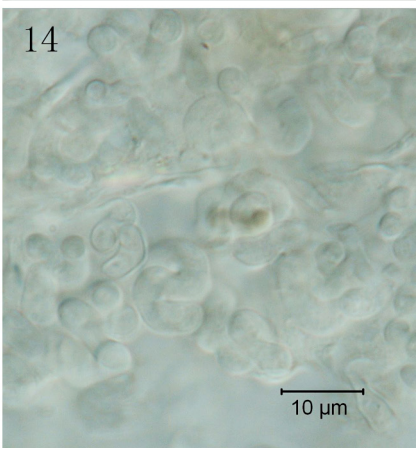

14
10 µm

Comments: *Septobasidium cotoneastri* is similar to *S. patouillardii* Burt, but the latter has a thinner section (300–460 μm high), larger basidia (18–23 × 5.2–5.6 μm) and thick-walled (ca. 3.2 μm thick) paraphyses in the hymenium (Couch 1938).

Septobasidium euonymi S.Z. Chen & L. Guo, **sp. nov.** Figs 15–21

Fungal Name FN 570032

Differs from *Septobasidium patouillardii* by its thinner section and transverse, thin-walled threads in the hymenium.

Type: China, Yunnan Province, Lijiang, Yushuizhai, alt. 2200 m, on *Euonymus japonicus* Thunb. (*Celastraceae*), associated with *Aonidiella* sp. (*Diaspididae*), 25.XI.2011, S.H. He YN01 (HMAS 251324, **holotype**).

Etymology: The epithet refers to the substrate plant genus.

Basidiomata on branches, resupinate, 2–8 cm long, 1.5–4 cm wide, cinnamon-brown, brown or chestnut-brown; margin white, determinate, surface smooth, cracked at maturity. In section 180–320 μm thick. Subiculum brown, 20–40 μm thick. Pillars brown, 60–110 μm high, 20–130(–300) μm wide. Hyphal layer 20–80 μm high, brown. Hymenium hyaline or brown, 50–60 μm thick,

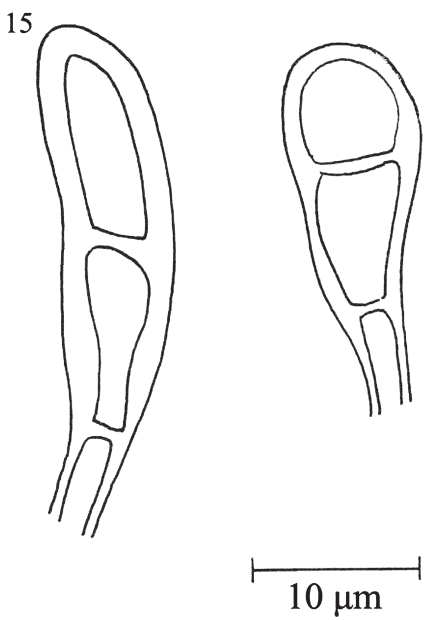
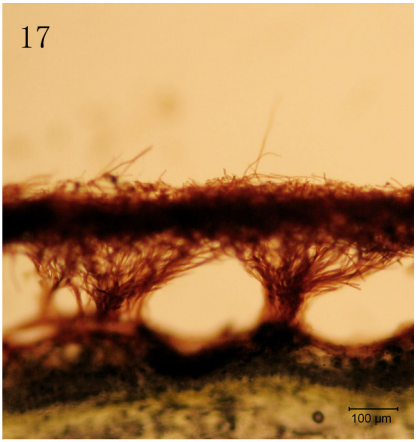


Fig. 15. *Septobasidium euonymi* (HMAS 251324, holotype). Basidia.

Figs. 16–21. *Septobasidium euonymi* (HMAS 251324, holotype). 16. Basidiomata on branch. 17–18. Sections of basidiomata. 19–20. Basidia (arrows). 21. Haustoria.

16



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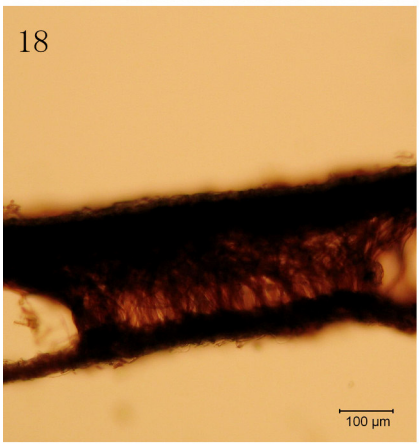

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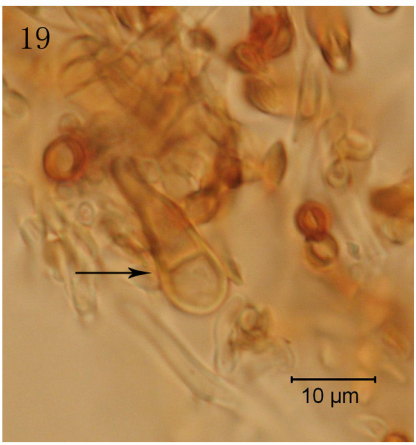

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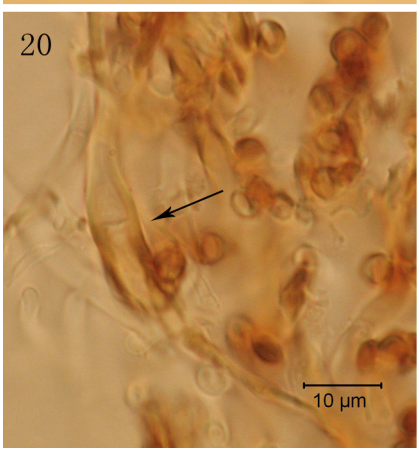

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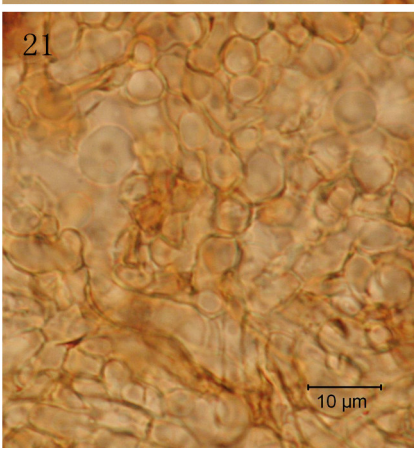

21

with transverse, thin-walled threads. Basidia arising directly from the hyphae without a probasidial cell, clavate, straight, 2-celled, 17–25 × 6.5–8 μm, hyaline or brownish; wall ca. 1 μm. Basidiospores not seen. Haustoria consisting of irregularly coiled hyphae and globose cells.

Comments: *Septobasidium euonymi* is similar to *S. patouillardii*, but the latter has a thicker section (300–460 μm high) and vertical, thick-walled (ca. 3.2 μm thick) paraphyses in the hymenium (Couch 1938).

Including the three new species reported in this paper, 49 *Septobasidium* species have now been reported in China (Sawada 1933, Couch 1938, Teng 1963, Tai 1979, Kirschner & Chen 2007, Lu & Guo 2009a,b,c, 2010a,b,c, 2011, Lu et al. 2010, Chen & Guo 2011a,b,c,d, 2012a,b).

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